REMARKS

In the Office Action, claims 1-3, 13-14, 17-21 and 29 were rejected under 35 U.S.C. 103 as being obvious from VanBuskirk et al. (U.S. Patent No. 6,075,534, hereinafter VanBuskirk) in view of Tannenbaum (U.S. Patent No. 6,233,560). Claims 4-16, 20, 22-28, and 30-33 were rejected as being obvious from VanBuskirk and Tannenbaum in view of French-St.George et al. (U.S. Patent No. 6,018,711, hereinafter French-St. George).

VanBuskirk describes a volume tracking window for a speech recognition system. Under VanBuskirk, the current detected volume of a speech signal is represented in the window by changing the color of the entire window or by moving a colored bar horizontally to show the current volume. The volume tracking window in VanBuskirk may be a "floating window". However, VanBuskirk does not show or suggest that the volume tracking window should be placed near an insertion marker. In addition, VanBuskirk does not show or suggest a progress meter that shows the progress of decoding an input speech signal.

French-St. George discloses an animation that indicates the amount of time the user has left in which to provide speech input to a speech recognizer. French-St. George does not suggest that this animation should be placed near an insertion point and does not show or suggest a progress meter that indicates the progress of decoding an input speech segment.

Tannenbaum discloses a speech recognition interface in which fully recognized phrases or commands are displayed in a box. Under Tannenbaum, the box is located either near where the user is currently focusing their attention or where the execution of the command is expected to take place. Tannenbaum does not disclose displaying a progress meter that indicates the progress of speech recognition.

Claims 1-16

Independent claim 1 of the present application is directed toward a method of displaying images on a display device. The method includes displaying an insertion marker at an insertion area on a display and displaying a progress meter near the insertion area based on the location of the insertion marker. The progress meter indicates the progress in decoding a speech input.

With the present amendment, the limitation to providing a progress meter that is indicative of the progress of decoding an input signal has been copied from dependent claim 13 and has been placed in claim 1.

As discussed in the specification of the present application, one problem with prior art speech recognition systems is that the user often does not know if the recognition system has stopped working or is busy decoding the speech signal. In the present invention, this problem is addressed by displaying a meter that shows the progress of decoding the input signal.

French-St. George does not discuss progress meters. As such, it does not suggest displaying a progress meter as found in claim 1. In addition, neither VanBuskirk nor Tannenbuam provide a progress meter that shows the progress of decoding an input signal. Instead, each displays decoded words instead of displaying a progress meter. Thus, the combination of these references does not show the invention of claim 1.

Note that the invention of claim 1 provides an advantage over the systems disclosed in VanBuskirk and Tannenbaum. In particular, since the invention of claim 1 provides progress information, the user is better able to

determine whether the recognition program has "frozen" or become "hung-up".

In the Office Action, it was asserted that the passage at col. 5, lines 45-64 of Tannenbaum teaches that information should be provided to the user if the recognition system is having difficulty recognizing an utterance. Applicants respectfully dispute this assertion.

In the cited section, Tannenbaum states that the length of time that the recognized word is displayed should be a function of the confidence in its recognition. Thus, words that have a high confidence measure appear for a shorter time than words with a low confidence measure.

This technique does not provide a progress meter or a recognition status because if a word remains on the screen for a long time, it is not immediately clear whether the system has low confidence in the word that is displayed or if the system has "frozen". By providing a progress meter, the invention of claim 1 provides the user with the current progress of decoding. If the progress meter remains stationary, it will be more likely that the system as "frozen". However, if the progress meter continues to move, even though no recognition results are produced for a long time, the user will know that the system is still working and has not become frozen. In Tannenbaum, a long persistence for a word is ambiguous because it could mean that the system has "frozen" or it could just mean that the word was recognized with low confidence.

Thus, the progress meter of claim 1 is substantially different from the persistence technique shown in Tannenbaum. As a result, claim 1, and claims 2-16, which depend therefrom are patentable over the cited combination of Tannenbaum, VanBuskirk, and French-St. George.

Claims 9-11

Claims 9-11 are additionally patentable over the combination of VanBuskirk, Tannenbaum and French-St. George. Claim 9 includes a limitation wherein a maximum height ratio for a base rectangle is subtracted from a transform ratio to produce an excess ratio. This excess ratio is then used to determine a height for a second rectangle to be displayed. Such steps are not shown or suggested in any of the cited art. As such, claims 9-11 are additionally patentable over the cited art.

Claims 13-16

Claims 13-16 are also additionally patentable over the combination of VanBuskirk, Tannenbaum and French-St. George. Claims 13 and 15 include an additional limitation wherein the progress meter is displayed by dividing the frame number of the last frame to be decoded by the total number of frames to produce a decode ratio.

None of the cited references show or suggest displaying a progress meter by determining a decode ratio as found in claims 13 and 15. In rejecting claims 13 and 15, the passage at col. 5, lines 45-64 of Tannenbaum was cited. However, this section does not discuss a decode ratio. Instead, it mearly suggests that the length of time that the feedback box is displayed can be made a function of the certainty with which the phrase or command has been decoded. This has nothing to do with a decode ratio as found in claims 13 and 15.

Since none of the cited references show the formation of a decode ratio as found in claims 13 and 15, claims 13-16 are additionally patentable over the cited art.

Claims 17-20

Claim 17 is directed toward a computer program having at least one insertion point marker that indicates the location

on the display where a user desires to provide input. The computer program also includes a speech recognition routine and a meter generation routine that displays a progress meter near the insertion point based on the insertion point marker. The progress meter is indicative of the amount of a speech signal that has been decoded by the speech recognition routine.

Like claim 1, claim 17 is not shown or suggested by the combination of VanBuskirk, Tannenbaum and French-St. George. In particular, none of these references show a progress meter that indicates the amount of a speech signal that has been decoded.

As noted above, VanBuskirk and Tannenbaum display phrases and commands after the entire phrase or command has been decoded. As such, neither reference provides a progress meter that indicates the amount of a speech signal that has been decoded. French-St. George does not show a progress meter at all.

Since none of the cited references show or suggest a progress meter that indicates the amount of a speech signal that has been decoded, their combination does not show or suggest the invention of claim 17. As such, claim 17 and claims 18-20, which depend therefrom, are patentable over the combination of VanBuskirk, Tannenbaum and French-St. George.

Claims 21-28 and 29-33

Independent claims 21 and 29 are directed toward a method and a computer program, respectively, that display a volume meter and a progress meter in proximity to each other. The volume meter indicates the volume of a speech signal and the progress meter indicates the progress of a speech recognition system in decoding the speech signal.

As noted above, none of VanBuskirk, Tannenbaum and French-St. George show or suggest a progress meter that indicates the progress in decoding a speech signal. As such, the combination of these references cannot show a progress meter that

is displayed near a volume meter and therefore cannot render claims 21-33 obvious.

CONCLUSION

In light of the above remarks, claims 1-33 are patentably distinct from the cited art. Reconsideration and allowance of claims 1-33 is respectfully requested.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

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MARKED-UP VERSION OF REPLACEMENT CLAIMS

1.(Twice Amended) A method in a computer system for generating images on a display device, the method comprising:

displaying an insertion marker at an insertion area on a display, the insertion area representing the location at which the user desires to provide input; and

displaying a progress meter near the insertion area based on the location of the insertion marker, the progress meter indicative of ~~a state of the computer system relative to~~ the progress in decoding a speech input.

2.(Amended) The method of claim 1 further comprising:

receiving input from the user indicating that a microphone is to be activated;

activating the microphone; and

~~wherein the step of displaying a meter comprises~~ displaying an indication that the microphone is active near the progress meter.

3.(Amended) The method of claim 1 ~~wherein displaying a meter indicative of a state of a computer system comprises~~ further comprising:

converting a user's speech input into an analog speech signal;

converting the analog speech signal into at least one digital speech value; and

transforming the at least one digital speech value into coordinates for at least one shape on the display positioned near the progress meter.

13.(Amended) The method of claim 1 wherein displaying a progress meter ~~indicative of a state of a computer system~~further comprises:

dividing the speech input into frames;

decoding at least one of the frames of speech into a sub-word unit;

dividing a frame number of the last frame to be decoded by the total number of frames to produce a decode ratio; and

displaying ~~a~~the progress meter ~~that is~~ based on the decode ratio.

14.(Amended) The method of claim 13 wherein displaying the progress meter further comprises:

multiplying the decode ratio by a full meter width to determine a progress width; and

calculating the coordinates of a progress rectangle based on the progress width, a stored meter height and a base point on the display.

15.(Amended) The method of claim 12 further comprising:

dividing the speech input into frames;

decoding at least one of the frames of speech into a sub-word unit;

dividing a frame number of the last frame to be decoded by the total number of frames to produce a decode ratio; and

displaying ~~a~~the progress meter based on the decode ratio by changing the color of at least one background rectangle.

17.(Amended) A computer program comprising:

at least one insertion point marker capable of maintaining the coordinates of an insertion point on a display, the insertion point representing a location on the display where a user desires to provide input; ~~and~~

a speech recognition routine capable of decoding a speech signal; and

a meter generation routine capable of displaying a meter near the insertion point based on the insertion point marker, the meter being indicative of an amount of a speech signal that has been decoded by the speech recognition routine~~state of a computer system relative to speech input from the user~~.

18.(Amended) The computer program of claim 17 wherein the meter generation routine further comprises:

a microphone state variable having a value that is indicative of whether a microphone is active; and

an active microphone display routine, capable of displaying an indication that the microphone is active near the insertion point.

19.(Amended) The computer program of claim 17 wherein the meter generation routine further comprises a transform routine capable of transforming a digital value into a set of coordinates for a shape on the display, the digital value being indicative of the magnitude of a portion of a speech signal.

20.(Amended) The computer program of claim 17 ~~further comprising:~~ wherein

~~a~~the speech recognition routine is capable of decoding a speech signal into a set of sub-words~~; and~~

~~wherein the meter generation routine comprises a progress routine capable of displaying a progress meter indicative of a percentage of a speech signal that has been decoded by the speech recognition routine.~~